

CLAIMS

1. A direct-injection two-stroke engine having a combustion chamber (12) delimited by:

5 · a cylinder (6) having a longitudinal axis (X), at least one inlet port (7, 8) and at least one exhaust port (9);

10 · a piston (4) having a substantially flat crown (4a) and moved along the longitudinal axis by a connecting rod (5) connected to a crankshaft (3); and

15 · a cylinder head (10) provided with a sparkplug (11) and an injector (20) adapted to spray a jet of liquid fuel under pressure into the combustion chamber along a jet injection axis (P),

20 wherein the combustion chamber (12) has a first diametral plane (P1-P1) containing the longitudinal axis (X) of the cylinder and centered on the exhaust port and a second diametral plane (P2-P2) perpendicular to said first diametral plane (P1-P1), the sparkplug (11) is in a first portion of the cylinder head extending from the second diametral plane (P2-P2) towards the inlet port (7), the injector (20) is in a second portion of the cylinder head complementary to the first portion, and the jet injection axis (P) is at a first angle α from 30° to 70° to a transverse plane (T-T) of the cylinder and a second angle β from $+45^\circ$ to -45° to the first diametral plane (P1-P1),

25 which engine is characterized in that the diffuser angle γ of the jet of fuel is from 15° to 75° ,

30 in that injection of fuel begins when the crankshaft (3) is at an angular position from 45° to 20° ahead of the angular position of closure of the exhaust port (9), and

35 in that the fuel injection pressure and the orientation of the jet injection axis (P) are determined as a function of the flow of the gases in the combustion chamber (12) to obtain a substantially stoichiometric

air/fuel mixture in the region of the sparkplug (11) at the moment of ignition.

2. An engine according to claim 1, wherein the fuel injection pressure is variable as a function of the engine speed and/or the engine load.
3. An engine according to claim 2, wherein the fuel injection pressure is from 50 bars to 150 bars.
4. An engine according to claim 2 or claim 3, wherein the fuel injection pressure is adjusted to different values according to an engine speed/load map.
5. An engine according to claim 1, wherein the fuel injection pressure is constant over the whole of the range of operation of the engine, which preferably has a cubic capacity at most equal to 125 cc.
6. An engine according to any preceding claim, wherein the injector (20) is disposed in a bore of the cylinder head (10) oriented along an axis (I) and the jet injection axis (P) is at a non-zero angle δ to said bore axis (I).
7. An engine according to any preceding claim, wherein the injector (20) passes through the cylinder head (10) in the first diametral plane (P1-P1).
8. An engine according to any preceding claim, wherein injection of fuel begins when the crankshaft (3) is situated in an angular position from 40° to 30° ahead of the angular position of closure of the exhaust port (9).